

### REMARKS

Applicant appreciates the Examiner's allowance of claims 23-25 and recognition of the allowability of claims 2-7, 9, 12-13, and 18-21. Applicant appreciates the courtesies extended by Examiner Bill Miller during an interview on July 8, 2004 with Applicant's attorneys, Allan A. Fanucci and Jeffrey A. Wolfson. The comments appearing herein summarize, and are substantially in accord with, those presented and discussed during the interview.

Claims 1-20, and 22-25, as amended, and new claims 26-27 are pending for the Examiner's consideration. Claim 21, which was coextensive with claim 25, has been retained in view of the amendment to claim 1. Claim 1 has been amended to more clearly and distinctly recite that the article is a predominantly tungsten-carbide annular article rather than one that simply contains a minor amount of tungsten-carbide (*See, e.g.*, Specification at page 4, lines 32-33 and page 6, lines 9-16). The specification has also been amended in the paragraph bridging pages 10-11 to more explicitly recite an inherent property of tungsten carbide--that tungsten carbide provides the jewelry items with a grey color. This grey color is distinct from gold or other yellowish colors, although additives in minor portions or decorative inserts of such gold or yellowish colors can be included in the annular body so long as the hard material has the recited grey color from the predominant tungsten carbide content. A clerical error in the spelling of dilution has also been corrected on page 3 of the specification. Claim 2 has been amended to substitute the more accurate term surface for "facet," as this occurrence of the word was overlooked in the previous Supplemental Amendment (*See, e.g.*, Specification at page 4, line 22 ("external face"); page 4, line 26 ("frusto-conically shaped facets"); page 5, lines 30-31 ("protective outer wear surface"); page 7, lines 4-6 ("axial extremes of the cross-section are generally semicircular," "cylindrical flats," and "angled or frusto-conical shaped facets or flats"); page 11, lines 5-7 ("concentric circular ring shapes of various sizes and profiles" and "circular designs"); page 11, line 18 ("the outer wear surfaces"); page 12, lines 11-13 ("the term facet is intended to include both cylindrical and frusto conical surfaces as well as planar or flat surfaces"))).

Claims 9 and 19 have also been rewritten into independent form under 35 U.S.C. § 112, fourth paragraph, such that no "narrowing amendment" has actually occurred. Based on the comments in the office action as confirmed by the Examiner during the interview, at least claims 9, 19-20, and 23-25 should be allowed and claims 18 and 21 are allowable. New claims 26-27 should also be allowable for the same reasons. As no new matter is added by these amendments or additions, all amended and new claims should be entered at this time.

DC:364931.1

Claims 1, 8, 10-11, 14-16, and 22 were rejected under 35 U.S.C. § 102(b) for anticipation over U.S. Patent No. 3,669,695 to Iler et al. ("Iler") on page 2 of the Office Action. Iler is stated to disclose a jewelry articles of an annular body with a hard material of tungsten carbide that is long wearing and virtually indestructible and at least one external surface having a predetermined shape and polished to a mirror finish. The Office Action states that the term "ground" with respect to the surface is a method limitation given little patentable weight in an article claim. Also, the Office Action states that the "ring" by definition has a curved external surface. Claim 1, however, recites an annular jewelry article and need not be a ring. See, for example, claim 16.

Iler teaches a vast array of different materials in different amounts. In an optional embodiment, Iler discloses that up to 70 volume percent tungsten carbide can be included in a mixture with at least 20 and preferably a minimum of 30 volume percent of nitrides. The mandatory nitride component is used in order to obtain "an unusual golden tone" in the final product (*See* Col. 8, lines 48-53).

Even if tungsten carbide were to be added to the nitrides at an amount of 70 volume percent of the mixture, this calculates to an overall weight percentage of only around 80%. For example, an 80 weight percent tungsten carbide and 20 weight percent cobalt article equates to less than 70 volume percent using the following calculation:  $(80/15.63)/((80/15.63) + (20/8.85))$ . Thus, the Office Action has already recognized the patentability of claims 7, 23, and new claims 26-27, each of which recites more than 85 weight% tungsten carbide or depends from a claim that recites this language. Also, Iler discloses a significantly high proportion of nitrides and other low density materials that it cannot achieve the high density of at least 13.3 g/cm<sup>3</sup> as recited in claims 21 and 25. Because Iler expressly discloses jewelry articles having a density of less than 9 g/cm<sup>3</sup> (Col. 2, lines 32-33), the Office Action has also recognized the patentability of these claims.

Moreover, claims 18-19 recite the transition language "consisting essentially of" with respect to the mixture of powdered materials in the recited amounts, which excludes amounts of materials like nitrides that have an undesirable effect on the claimed invention. In the case of too high a level of nitrides, these will cause a hard, predominantly tungsten carbide material to soften and scratch more easily, to lose density, and to have a more golden or yellowish color rather than a grey color such as that of a material consisting essentially of tungsten carbide. This claim transition term "consisting essentially of" is open to cover additional components but excludes components or ingredients that would "'materially affect the basic and novel characteristics' of the claimed composition." *Atlas Powder Co. v. E.I. Du*

*Pont de Nemours*, 750 F.2d 1569, 1574 (Fed. Cir. 1984) (quoting *In re Herz*, 537 F.2d 549, 551 (C.C.P.A. 1976)); See also MPEP § 2111.03.

Indeed, as previously discussed, nitrides as part of the mixture containing powdered materials can detrimentally affect the basic and novel characteristics of the claimed invention by imparting a gold colored tint and a disadvantageous softening effect to tungsten-carbide based materials. Thus, because Iler teaches nitride-based articles with at least 20 volume percent nitrides, it is clearly distinct from a mixture of powdered materials that consists essentially of tungsten carbide or consists essentially of tungsten carbide and a metal binder material, and the language thereby excludes any significant amount of undesirable nitrides that would detrimentally affect the color, density, and hardness of the claimed jewelry article. The specification and claims clearly support this exclusion of nitrides, which would undesirably affect the noted basic and novel characteristics of the claimed invention. In particular, for example, claim 19 recites a hard material, and too high a nitride level would undesirably soften the material. Also, claim 19 recites that the tungsten carbide and binder materials are long wearing and virtually indestructible during normal use of the jewelry article, however, high levels of nitrides result in a softer material than tungsten carbide. For these additional reasons, claims 18-19 have been found allowable by the Patent Office and claim 19 has been rewritten in independent form.

Initially, Iler fails to disclose the grey color and fails to enable the predominantly tungsten carbide material now recited in claim 1. Iler also fails to disclose a hard material being long wearing and virtually indestructible during normal use of the jewelry article. Indeed, Iler actually *teaches away* from the inclusion of significant amounts of carbides in its nitride-based jewelry articles by stating that such refractory carbides pose problems such as *high density*. Iler further teaches away from tungsten-carbide articles by teaching that the problems of carbide-based prior art materials can be avoided by instead preparing jewelry articles having *substantial amounts of nitrides*, which impart a distinct and unusual golden color (Col. 1, lines 34-49). For these reasons, Iler does not disclose the invention recited in various claims including claim 1.

Moreover, although a patent reference is usable for its full disclosure, its teachings must be evaluated in connection with the features of the invention that are disclosed therein. The reference must be considered *as a whole*, and any alleged overlap must be shown with sufficient specificity (MPEP § 2131.03). Clearly, Iler is making products that **must** contain significant--if not substantial--amounts of nitrides, and that component must be present to obtain the desirable golden color apparently in an attempt to mimic the look of gold jewelry. It is highly unlikely that anyone following Iler's teachings would use the

maximum optional amount of 70 volume percent of any carbide, much less tungsten carbide. In addition, Iler fails to teach or provide any actual example of being able to prepare a jewelry article having less than 50 volume percent nitrides. In all of its 10 examples, only a single example (Example 7, which has no tungsten--much less tungsten carbide) has 50 volume percent nitrides, while the other examples include amounts ranging from 55 volume percent upwards to 80 volume percent nitrides and higher. If the nitrides are present in an amount of at least 50 volume percent, then the maximum amount of carbide that optionally could be added cannot be more than 50 volume percent. This converts to a maximum amount of around, *e.g.*, 36 weight percent tungsten carbide for a blend of tungsten carbide and cobalt. Such a low weight percentage of tungsten carbide taught by Iler is much less than the minimum predominantly tungsten carbide that is now recited in claim 1.

Furthermore, it is unlikely that anyone following Iler's teachings would use or add this high an amount of any refractory carbide, since Iler further teaches that other components can and should be used in addition to the carbides--and that even higher amounts of nitrides are preferred. As noted, Iler actually teaches nitride-based articles and the patent is even entitled "*Titanium and/or Zirconium Nitride Based Articles of Jewelry*" (emphasis added). Iler therefore teaches and enables the use of significant amounts of nitrides that limits the amount of includable tungsten-carbide and other materials. He states that his articles should "consist essentially of nitrides" in 20 to 100 volume percent, and thus can only "optionally contain oxides, carbides, borides, and metal" (Col. 5, lines 55-63). Iler further teaches, as noted above, that his nitride based jewelry articles have "an unusual golden tone" because of the "presence of the nitrides" (Col. 8, lines 48-53). Moreover, Iler's examples all teach and enable various other materials besides nitrides, which would reduce the amount of weight percentage of any optional carbides that were included.

Moreover, the predominant amounts of tungsten carbide provided according to the present invention provides unexpected advantages in that a jewelry article that is long wearing and virtually indestructible during normal use thereof can be provided. Jewelry articles with significant amounts of nitrides, such as taught by Iler, will not be long wearing and virtually indestructible as is a predominantly tungsten carbide jewelry article. Also, polished tungsten carbide materials inherently provide a silvery, grey color, which is also now recited in claim 1, rather than a gold or yellowish one that is provided by the nitride based materials of Iler. Iler's nitride-based jewelry articles are desirably yellow/gold hued, while claim 1 now more clearly recites that the mirror finish is a grey color as distinct from gold. Despite Iler's disclosure of scratch-resistance and corrosion resistance (Col. 8, lines 53-67), the nitride-based material of Iler provides a golden color and is softer than tungsten

carbide-based materials and cannot provide the long wearing and virtually indestructible jewelry articles or methods of providing the same as presently recited. Iler's comparison is made against "conventional materials" such as stainless steel, silver, and gold (*Id.*), rather than the hard material comprising predominantly tungsten carbide now recited in claim 1. Indeed, Iler *teaches away* from tungsten carbide, and where tungsten is used the most tungsten material that is present in Iler's 10 examples is 30 volume percent *tungsten*. Not a single example in Iler includes a jewelry article with tungsten carbide, much less in the predominant amount presently recited in claim 1. Thus, Iler fails to disclose each and every claimed feature, and fails to teach the claimed invention, presently recited in claim 1.

Various other claims also recite separately patentable features. For example, claim 2 recites a structure having certain surfaces that were not readily obtainable with hard materials such as those recited in claim 1, from which it depends. Moreover, claim 9 recites that at least one additional external surface is present on the annular body and comprises at least one or more finishes to provide unique reflection characteristics to the article. Tungsten carbide, as an extremely hard material, can be difficult to handle—particularly in jewelry articles. Thus, it was surprising and unexpected that different finishes could be imparted to an additional surface of the hard material comprising tungsten carbide, as presently recited. Additionally, Iler clearly fails to disclose or teach non-polished portions of an external surface of the jewelry article, which is one possible type of finish discussed in the present application and recited in claim 9.

During the interview, the Examiner noted that other references likely teach jewelry articles that contain a groove, and he hypothetically questioned why the present invention would be patentable over the combination of Iler with another such reference. In addition to all the distinctions of the present invention over Iler noted herein, it would not be appropriate to combine Iler with a reference that discloses general jewelry articles of gold or other metals in a structure that has grooves or similar structures, because such structures, when made of metal, are relatively easy to machine and polish. In contrast, a ceramic article, such as that disclosed by Iler, is much more difficult to machine and polish, such that Iler would teach away from the use of grooves, facets or other similar surfaces that might be disclosed in such other reference. Further details can be provided regarding the lack of combinability of such references in the event that the Examiner locates a specific reference to combine with Iler.

Applicants would also like to correct a misconception in the Office Action. The surface of the claimed annular jewelry article need not have a curved external surface or need not be entirely formed of curved surfaces. Indeed, it is possible for the claimed article

to, for example, form the annular band with an external surface that includes a series of flat external surfaces that are at an angle to each other and extend adjacently and completely around the diameter of the annular jewelry article. In other embodiments, some or all of the surfaces are curved—but they need not be as recited, for example, in claim 1. For these reasons, Iler fails to disclose—much less teach—each and every feature presently recited. As such, Applicant respectfully requests that the rejection under 35 U.S.C. § 102(b) be reconsidered and withdrawn.

Also, claim 17 was separately rejected under 35 U.S.C. § 103(a) as being obvious in view of Iler on page 3 of the Office Action, as it allegedly would have been obvious design choice to include design details on the “ring” for ornamentation. While it is true that a motivation may have existed to include design details, the fact is that tungsten carbide is difficult to work with. Thus, those of ordinary skill in the art would not have reasonably expected to achieve success in forming these or other design details on the surface of a predominantly tungsten carbide jewelry article, as presently recited by claim 17. Indeed, claim 17 recites that the design details that are maintained in their original configuration indefinitely, however, Iler fails to teach such features. In fact, as discussed herein, Iler teaches a softer material including a significant amount of nitrides such that it would not maintain any design details in their original configuration indefinitely. Rather, any design features on an annular jewelry article according to Iler’s teachings would wear over time, resulting in a design feature that does not maintain its original configuration, as presently recited by claim 17. Thus, it is respectfully submitted that the rejection of claim 17 under 35 U.S.C. § 103(a) be reconsidered and withdrawn, as no *prima facie* case of obviousness has been stated on the record.

Accordingly, Applicants respectfully submit that all claims are in condition for allowance. Should the Examiner not agree with this position, a telephone or personal interview is requested to resolve any remaining issues and expedite allowance of this application.

Respectfully submitted,

7/15/04  
Date

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